SEQUENCE LISTING

<110> IGGO, RICHARD DEREK
FUERER, CHRISTOPHE
HOMICSKO, KRISZTIAN GYULA

<120> ANTI-NEOPLASTIC VIRAL AGENTS

<130> 604-689

<140> 10/612,285
<141> 2003-07-03

<150> 10/433,681
<151> 2003-06-04

<150> PCT/GB02/03211
<151> 2002-07-12

<150> GB 0117198.2
<151> 2001-07-13

<160> 66

<170> PatentIn Ver. 3.2

<210> 1
<211> 35935
<212> DNA
<213> Adenovirus type 5

<400> 1
catcatcaat aatatacctt attttggatt gaagccaata tgataatgag ggggtggagt 60
ttgtgacgtg gcgcggggcg tgggaacggg gcgggtgacg tagtagtgtg gcggaagtgt 120
gatgttgcaa gtgtggcgga acacatgtaa gcgacggatg tggcaaaagt gacgtttttg 180
gtgtgcgccg gtgtacacag gaagtgacaa ttttcgcgcg gttttaggcg gatgttgtag 240
taaatttggg cgtaaccgag taagatttgg ccattttcgc gggaaaactg aataagagga 300
agtgaaatct gaataatttt gtgttactca tagcgcgtaa tatttgtcta gggccgcggg 360
gactttgacc gtttacgtgg agactcgccc aggtgttttt ctcaggtgtt ttccgcgttc 420
cgggtcaaag ttggcgtttt attattatag tcagctgacg tgtagtgtat ttatacccgg 480
tgagttcctc aagaggccac tcttgagtgc cagcgagtag agttttctcc tccgagccgc 540
tccgacaccg ggactgaaaa tgagacatat tatctgccac ggaggtgtta ttaccgaaga 600
aatggccgcc agtcttttgg accagctgat cgaagaggta ctggctgata atcttccacc 660
tcctagccat tttgaaccac ctacccttca cgaactgtat gatttagacg tgacggcccc 720
cgaagatccc aacgaggagg cggtttcgca gatttttccc gactctgtaa tgttggcggt 780
gcaggaaggg attgacttac tcacttttcc gccggcgccc ggttctccgg agccgcctca 840
cctttcccgg cagcccgagc agccggagca gagagccttg ggtccggttt ctatgccaaa 900
ccttgtaccg gaggtgatcg atcttacctg ccacgaggct ggctttccac ccagtgacga 960
cgaggatgaa gagggtgagg agtttgtgtt agattatgtg gagcaccccg ggcacggttg 1020
caggtcttgt cattatcacc ggaggaatac gggggaccca gatattatgt gttcgctttg 1080
ctatatgagg acctgtggca tgtttgtcta cagtaagtga aaattatggg cagtgggtga 1140
tagagtggtg ggtttggtgt ggtaattttt tttttaattt ttacagtttt gtggtttaaa 1200
gaattttgta ttgtgatttt tttaaaaggt cctgtgtctg aacctgagcc tgagcccgag 1260
ccagaaccgg agcctgcaag acctacccgc cgtcctaaaa tggcgcctgc tatcctgaga 1320
cgcccgacat cacctgtgtc tagagaatgc aatagtagta cggatagctg tgactccggt 1380
ccttctaaca cacctcctga gatacacccg gtggtcccgc tgtgccccat taaaccagtt 1440
gccgtgagag ttggtgggcg tcgccaggct gtggaatgta tcgaggactt gcttaacgag 1500
cctgggcaac ctttggactt gagctgtaaa cgccccaggc cataaggtgt aaacctgtga 1560

ttgcgtgtgt ggttaacgcc tttgtttgct gaatgagttg atgtaagttt aataaagggt 1620
gagataatgt ttaacttgca tggcgtgtta aatggggcgg ggcttaaagg gtatataatg 1680
cgccgtgggc taatcttggt tacatctgac ctcatggagg cttgggagtg tttggaagat 1740
ttttctgctg tgcgtaactt gctggaacag agctctaaca gtacctcttg gttttggagg 1800
tttctgtggg gctcatccca ggcaaagtta gtctgcagaa ttaaggagga ttacaagtgg 1860
gaatttgaag agcttttgaa atcctgtggt gagctgtttg attctttgaa tctgggtcac 1920
caggcgcttt tccaagagaa ggtcatcaag actttggatt tttccacacc ggggcgcgct 1980
gcggctgctg ttgctttttt gagttttata aaggataaat ggagcgaaga aacccatctg 2040
agcggggggt acctgctgga ttttctggcc atgcatctgt ggagagcggt tgtgagacac 2100
aagaatcgcc tgctactgtt gtcttccgtc cgcccggcga taataccgac ggaggagcag 2160
cagcagcagc aggaggaagc caggcggcgg cggcaggagc agagcccatg gaacccgaga 2220
gccggcctgg accctcggga atgaatgttg tacaggtggc tgaactgtat ccagaactga 2280
gacgcatttt gacaattaca gaggatgggc aggggctaaa gggggtaaag agggagcggg 2340
gggcttgtga ggctacagag gaggctagga atctagcttt tagcttaatg accagacacc 2400
gtcctgagtg tattactttt caacagatca aggataattg cgctaatgag cttgatctgc 2460
tggcgcagaa gtattccata gagcagctga ccacttactg gctgcagcca ggggatgatt 2520
ttgaggaggc tattagggta tatgcaaagg tggcacttag gccagattgc aagtacaaga 2580
tcagcaaact tgtaaatatc aggaattgtt gctacatttc tgggaacggg gccgaggtgg 2640
agatagatac ggaggatagg gtggccttta gatgtagcat gataaatatg tggccggggg 2700
tgcttggcat ggacggggtg gttattatga atgtaaggtt tactggcccc aattttagcg 2760
gtacggtttt cctggccaat accaacctta tcctacacgg tgtaagcttc tatgggttta 2820
acaatacctg tgtggaagcc tggaccgatg taagggttcg gggctgtgcc ttttactgct 2880
gctggaaggg ggtggtgtgt cgccccaaaa gcagggcttc aattaagaaa tgcctctttg 2940
aaaggtgtac cttgggtatc ctgtctgagg gtaactccag ggtgcgccac aatgtggcct 3000
ccgactgtgg ttgcttcatg ctagtgaaaa gcgtggctgt gattaagcat aacatggtat 3060
gtggcaactg cgaggacagg gcctctcaga tgctgacctg ctcggacggc aactgtcacc 3120
tgctgaagac cattcacgta gccagccact ctcgcaaggc ctggccagtg tttgagcata 3180
acatactgac ccgctgttcc ttgcatttgg gtaacaggag gggggtgttc ctaccttacc 3240
aatgcaattt gagtcacact aagatattgc ttgagcccga gagcatgtcc aaggtgaacc 3300
tgaacggggt gtttgacatg accatgaaga tctggaaggt gctgaggtac gatgagaccc 3360
gcaccaggtg cagaccctgc gagtgtggcg gtaaacatat taggaaccag cctgtgatgc 3420
tggatgtgac cgaggagctg aggcccgatc acttggtgct ggcctgcacc cgcgctgagt 3480
ttggctctag cgatgaagat acagattgag gtactgaaat gtgtgggcgt ggcttaaggg 3540
tgggaaagaa tatataaggt gggggtctta tgtagttttg tatctgtttt gcagcagccg 3600
ccgccgccat gagcaccaac tcgtttgatg gaagcattgt gagctcatat ttgacaacgc 3660
gcatgccccc atgggccggg gtgcgtcaga atgtgatggg ctccagcatt gatggtcgcc 3720
ccgtcctgcc cgcaaactct actaccttga cctacgagac cgtgtctgga acgccgttgg 3780
agactgcagc ctccgccgcc gcttcagccg ctgcagccac cgcccgcggg attgtgactg 3840
actttgcttt cctgagcccg cttgcaagca gtgcagcttc ccgttcatcc gcccgcgatg 3900
acaagttgac ggctcttttg gcacaattgg attctttgac ccgggaactt aatgtcgttt 3960
ctcagcagct gttggatctg cgccagcagg tttctgccct gaaggcttcc tcccctccca 4020
atgcggttta aaacataaat aaaaaaccag actctgtttg gatttggatc aagcaagtgt 4080
cttgctgtct ttatttaggg gttttgcgcg cgcggtaggc ccgggaccag cggtctcggt 4140
cgttgagggt cctgtgtatt ttttccagga cgtggtaaag gtgactctgg atgttcagat 4200
acatgggcat aagcccgtct ctggggtgga ggtagcacca ctgcagagct tcatgctgcg 4260
gggtggtgtt gtagatgatc cagtcgtagc aggagcgctg ggcgtggtgc ctaaaaatgt 4320
ctttcagtag caagctgatt gccaggggca ggcccttggt gtaagtgttt acaaagcggt 4380
taagctggga tgggtgcata cgtggggata tgagatgcat cttggactgt atttttaggt 4440
tggctatgtt cccagccata tccctccggg gattcatgtt gtgcagaacc accagcacag 4500
tgtatccggt gcacttggga aatttgtcat gtagcttaga aggaaatgcg tggaagaact 4560
tggagacgcc cttgtgacct ccaagatttt ccatgcattc gtccataatg atggcaatgg 4620
gcccacgggc ggcggcctgg gcgaagatat ttctgggatc actaacgtca tagttgtgtt 4680
ccaggatgag atcgtcatag gccatttta caaagcgcgg gcggagggtg ccagactgcg 4740
gtataatggt tccatccggc ccaggggcgt agttaccctc acagatttgc atttcccacg 4800
ctttgagttc agatgggggg atcatgtcta cctgcggggc gatgaagaaa acggtttccg 4860
gggtagggga gatcagctgg gaagaaagca ggttcctgag cagctgcgac ttaccgcagc 4920
cggtgggccc gtaaatcaca cctattaccg ggtgcaactg gtagttaaga gagctgcagc 4980
tgccgtcatc cctgagcagg ggggccactt cgttaagcat gtccctgact cgcatgtttt 5040

ccctgaccaa atccgccaga aggcgctcgc cgcccagcga tagcagttct tgcaaggaag 5100
caaagttttt caacggtttg agaccgtccg ccgtaggcat gcttttgagc gtttgaccaa 5160
gcagttccag gcggtcccac agctcggtca cctgctctac ggcatctcga tccagcatat 5220
ctcctcgttt cgcgggttgg ggcggctttc gctgtacggc agtagtcggt gctcgtccag 5280
acgggccagg gtcatgtctt tccacgggcg cagggtcctc gtcagcgtag tctgggtcac 5340
ggtgaagggg tgcgctccgg gctgcgcgct ggccagggtg cgcttgaggc tggtcctgct 5400
ggtgctgaag cgctgccggt cttcgccctg cgcgtcggcc aggtagcatt tgaccatggt 5460
gtcatagtcc agcccctccg cggcgtggcc cttggcgcgc agcttgccct tggaggaggc 5520
gccgcacgag gggcagtgca gacttttgag ggcgtagagc ttgggcgcga gaaataccga 5580
ttccggggag taggcatccg cgccgcaggc cccgcagacg gtctcgcatt ccacgagcca 5640
ggtgagctct ggccgttcgg ggtcaaaaac caggtttccc ccatgctttt tgatgcgttt 5700
cttacctctg gtttccatga gccggtgtcc acgctcggtg acgaaaaggc tgtccgtgtc 5760
cccgtataca gacttgagag gcctgtcctc gagcggtgtt ccgcggtcct cctcgtatag 5820
aaactcggac cactctgaga caaaggctcg cgtccaggcc agcacgaagg aggctaagtg 5880
ggaggggtag cggtcgttgt ccactagggg gtccactcgc tccagggtgt gaagacacat 5940
gtcgccctct tcggcatcaa ggaaggtgat tggtttgtag gtgtaggcca cgtgaccggg 6000
tgttcctgaa gggggggctat aaaaggggggt gggggcgcgt tcgtcctcac tctcttccgc 6060
atcgctgtct gcgagggcca gctgttgggg tgagtactcc ctctgaaaag cgggcatgac 6120
ttctgcgcta agattgtcag tttccaaaaa cgaggaggat ttgatattca cctggcccgc 6180
ggtgatgcct ttgagggtgg ccgcatccat ctggtcagaa aagacaatct ttttgttgtc 6240
aagcttggtg gcaaacgacc cgtagagggc gttggacagc aacttggcga tggagcgcag 6300
ggtttggttt ttgtcgcgat cggcgcgctc cttggccgcg atgtttagct gcacgtattc 6360
gcgcgcaacg caccgccatt cgggaaagac ggtggtgcgc tcgtcgggca ccaggtgcac 6420
gcgccaaccg cggttgtgca gggtgacaag gtcaacgctg gtggctacct ctccgcgtag 6480
gcgctcgttg gtccagcaga ggcggccgcc cttgcgcgag cagaatggcg gtagggggtc 6540
tagctgcgtc tcgtccgggg ggtctgcgtc cacggtaaag accccgggca gcaggcgcgc 6600
gtcgaagtag tctatcttgc atccttgcaa gtctagcgcc tgctgccatg cgcgggcggc 6660
aagcgcgcgc tcgtatgggt tgagtggggg accccatggc atggggtggg tgagcgcgga 6720
ggcgtacatg ccgcaaatgt cgtaaacgta gaggggctct ctgagtattc caagatatgt 6780
agggtagcat cttccaccgc ggatgctggc gcgcacgtaa tcgtatagtt cgtgcgaggg 6840
agcgaggagg tcgggaccga ggttgctacg ggcgggctgc tctgctcgga agactatctg 6900
cctgaagatg gcatgtgagt tggatgatat ggttggacgc tggaagacgt tgaagctggc 6960
gtctgtgaga cctaccgcgt cacgcacgaa ggaggcgtag gagtcgcgca gcttgttgac 7020
cagctcggcg gtgacctgca cgtctagggc gcagtagtcc agggtttcct tgatgatgtc 7080
atacttatcc tgtccctttt ttttccacag ctcgcggttg aggacaaact cttcgcggtc 7140
tttccagtac tcttggatcg gaaacccgtc ggcctccgaa cggtaagagc ctagcatgta 7200
gaactggttg acggcctggt aggcgcagca tccctttttct acgggtagcg cgtatgcctg 7260
cgcggccttc cggagcgagg tgtgggtgag cgcaaaggtg tccctgacca tgactttgag 7320
gtactggtat ttgaagtcag tgtcgtcgca tccgccctgc tcccagagca aaaagtccgt 7380
gcgctttttg gaacgcggat ttggcagggc gaaggtgaca tcgttgaaga gtatctttcc 7440
cgcgcgaggc ataaagttgc gtgtgatgcg gaagggtccc ggcacctcgg aacggttgtt 7500
aattacctgg gcggcgagca cgatctcgtc aaagccgttg atgttgtggc ccacaatgta 7560
aagttccaag aagcgcggga tgcccttgat ggaaggcaat tttttaagtt cctcgtaggt 7620
gagctcttca ggggagctga gcccgtgctc tgaaagggcc cagtctgcaa gatgagggtt 7680
ggaagcgacg aatgagctcc acaggtcacg ggccattagc atttgcaggt ggtcgcgaaa 7740
ggtcctaaac tggcgaccta tggccatttt ttctggggtg atgcagtaga aggtaagcgg 7800
gtcttgttcc cagcggtccc atccaaggtt cgcggctagg tctcgcgcgg cagtcactag 7860
aggctcatct ccgccgaact tcatgaccag catgaagggc acgagctgct tcccaaaggc 7920
ccccatccaa gtataggtct ctacatcgta ggtgacaaag agacgctcgg tgcgaggatg 7980
cgagccgatc gggaagaact ggatctcccg ccaccaattg gaggagtggc tattgatgtg 8040
gtgaaagtag aagtccctgc gacgggccga acactcgtgc tggcttttgt aaaaacgtgc 8100
gcagtactgg cagcggtgca cgggctgtac atcctgcacg aggttgacct gacgaccgcg 8160
cacaaggaag cagagtggga atttgagccc ctcgcctggc gggtttggct ggtggtcttc 8220
tacttcggct gcttgtcctt gaccgtctgg ctgctcgagg ggagttacgg tggatcggac 8280
caccacgccg cgcgagccca aagtccagat gtccgcgcgc ggcggtcgga gcttgatgac 8340
aacatcgcgc agatgggagc tgtccatggt ctggagctcc cgcggcgtca ggtcaggcgg 8400
gagctcctgc aggtttacct cgcatagacg ggtcagggcg cgggctagat ccaggtgata 8460
cctaatttcc aggggctggt tggtggcggc gtcgatggct tgcaagaggc cgcatccccg 8520

cggcgcgact acggtaccgc gcggcgggcg gtgggccgcg ggggtgtcct tggatgatgc 8580
atctaaaagc ggtgacgcgg gcgagccccc ggaggtaggg ggggctccgg acccgccggg 8640
agaggggggca ggggcacgtc ggcgccgcgc gcgggcagga gctggtgctg cgcgcgtagg 8700
ttgctggcga acgcgacgac gcggcggttg atctcctgaa tctggcgcct ctgcgtgaag 8760
acgacgggcc cggtgagctt gagcctgaaa gagagttcga cagaatcaat ttcggtgtcg 8820
ttgacggcgg cctggcgcaa aatctcctgc acgtctcctg agttgtcttg ataggcgatc 8880
tcggccatga actgctcgat ctcttcctcc tggagatctc cgcgtccggc tcgctccacg 8940
gtggcggcga ggtcgttgga aatgcgggcc atgagctgcg agaaggcgtt gaggcctccc 9000
tcgttccaga cgcggctgta gaccacgccc ccttcggcat cgcgggcgcg catgaccacc 9060
tgcgcgagat tgagctccac gtgccgggcg aagacggcgt agtttcgcag gcgctgaaag 9120
aggtagttga gggtggtggc ggtgtgttct gccacgaaga agtacataac ccagcgtcgc 9180
aacgtggatt cgttgatatc ccccaaggcc tcaaggcgct ccatggcctc gtagaagtcc 9240
acggcgaagt tgaaaaactg ggagttgcgc gccgacacgg ttaactcctc ctccagaaga 9300
cggatgagct cggcgacagt gtcgcgcacc tcgcgctcaa aggctacagg ggcctcttct 9360
tcttcttcaa tctcctcttc cataagggcc tccccttctt cttcttctgg cggcggtggg 9420
ggaggggggа cacggcggcg acgacggcgc accgggaggc ggtcgacaaa gcgctcgatc 9480
atctccccgc ggcgacggcg catggtctcg gtgacggcgc ggccgttctc gcgggggcgc 9540
agttggaaga cgccgcccgt catgtcccgg ttatgggttg gcgggggggct gccatgcggc 9600
agggatacgg cgctaacgat gcatctcaac aattgttgtg taggtactcc gccgccgagg 9660
gacctgagcg agtccgcatc gaccggatcg gaaaacctct cgagaaaggc gtctaaccag 9720
tcacagtcgc aaggtaggct gagcaccgtg gcgggcggca gcgggcggcg gtcggggttg 9780
tttctggcgg aggtgctgct gatgatgtaa ttaaagtagg cggtcttgag acggcggatg 9840
gtcgacagaa gcaccatgtc cttgggtccg gcctgctgaa tgcgcaggcg gtcggccatg 9900
ccccaggctt cgttttgaca tcggcgcagg tctttgtagt agtcttgcat gagcctttct 9960
accggcactt cttcttctcc ttcctcttgt cctgcatctc ttgcatctat cgctgcggcg 10020
gcggcggagt ttggccgtag gtggcgccct cttcctccca tgcgtgtgac cccgaagccc 10080
ctcatcggct gaagcagggc taggtcggcg acaacgcgct cggctaatat ggcctgctgc 10140
acctgcgtga gggtagactg gaagtcatcc atgtccacaa agcggtggta tgcgcccgtg 10200
ttgatggtgt aagtgcagtt ggccataacg gaccagttaa cggtctggtg acccggctgc 10260
gagagctcgg tgtacctgag acgcgagtaa gccctcgagt caaatacgta gtcgttgcaa 10320
gtccgcacca ggtactggta tcccaccaaa aagtgcggcg gcggctggcg gtagaggggc 10380
cagcgtaggg tggccggggc tccgggggcg agatcttcca acataaggcg atgatatccg 10440
tagatgtacc tggacatcca ggtgatgccg gcggcggtgg tggaggcgcg cggaaagtcg 10500
cggacgcggt tccagatgtt gcgcagcggc aaaaagtgct ccatggtcgg gacgctctgg 10560
ccggtcaggc gcgcgcaatc gttgacgctc tagaccgtgc aaaaggagag cctgtaagcg 10620
ggcactcttc cgtggtctgg tggataaatt cgcaagggta tcatggcgga cgaccggggt 10680
tcgagccccg tatccggccg tccgccgtga tccatgcggt taccgcccgc gtgtcgaacc 10740
caggtgtgcg acgtcagaca acgggggagt gctccttttg gcttccttcc aggcgcggcg 10800
gctgctgcgc tagcttttтt ggccactggc cgcgcgcagc gtaagcggtt aggctggaaa 10860
gcgaaagcat taagtggctc gctccctgta gccggagggt tattttccaa gggttgagtc 10920
gcgggacccc cggttcgagt ctcggaccgg ccggactgcg gcgaacgggg gtttgcctcc 10980
ccgtcatgca agaccccgct tgcaaattcc tccggaaaca gggacgagcc ccttttttgc 11040
ttttcccaga tgcatccggt gctgcggcag atgcgccccc ctcctcagca gcggcaagag 11100
caagagcagc ggcagacatg cagggcaccc tcccctcctc ctaccgcgtc aggaggggcg 11160
acatccgcgg ttgacgcggc agcagatggt gattacgaac ccccgcggcg ccgggcccgg 11220
cactacctgg acttggagga gggcgagggc ctggcgcggc taggagcgcc ctctcctgag 11280
cggtacccaa gggtgcagct gaagcgtgat acgcgtgagg cgtacgtgcc gcggcagaac 11340
ctgtttcgcg accgcgaggg agaggagccc gaggagatgc gggatcgaaa gttccacgca 11400
gggcgcgagc tgcggcatgg cctgaatcgc gagcggttgc tgcgcgagga ggactttgag 11460
cccgacgcgc gaaccgggat tagtcccgcg cgcgcacacg tggcggccgc cgacctggta 11520
accgcatacg agcagacggt gaaccaggag attaactttc aaaaaagctt taacaaccac 11580
gtgcgtacgc ttgtggcgcg cgaggaggtg gctataggac tgatgcatct gtgggacttt 11640
gtaagcgcgc tggagcaaaa cccaaatagc aagccgctca tggcgcagct gttccttata 11700
gtgcagcaca gcagggacaa cgaggcattc agggatgcgc tgctaaacat agtagagccc 11760
gagggccgct ggctgctcga tttgataaac atcctgcaga gcatagtggt gcaggagcgc 11820
agcttgagcc tggctgacaa ggtggccgcc atcaactatt ccatgcttag cctgggcaag 11880
ttttacgccc gcaagatata ccataccccт tacgttccca tagacaagga ggtaaagatc 11940
gaggggttct acatgcgcat ggcgctgaag gtgcttacct tgagcgacga cctgggcgtt 12000

tatcgcaacg agcgcatcca caaggccgtg agcgtgagcc ggcggcgcga gctcagcgac 12060
cgcgagctga tgcacagcct gcaaagggcc ctggctggca cgggcagcgg cgatagagag 12120
gccgagtcct actttgacgc gggcgctgac ctgcgctggg ccccaagccg acgcgccctg 12180
gaggcagctg gggccggacc tgggctggcg gtggcacccg cgcgcgctgg caacgtcggc 12240
ggcgtggagg aatatgacga ggacgatgag tacgagccag aggacggcga gtactaagcg 12300
gtgatgtttc tgatcagatg atgcaagacg caacggaccc ggcggtgcgg gcggcgctgc 12360
agagccagcc gtccggcctt aactccacgg acgactggcg ccaggtcatg gaccgcatca 12420
tgtcgctgac tgcgcgcaat cctgacgcgt tccggcagca gccgcaggcc aaccggctct 12480
ccgcaattct ggaagcggtg gtcccggcgc gcgcaaaccc cacgcacgag aaggtgctgg 12540
cgatcgtaaa cgcgctggcc gaaaacaggg ccatccggcc cgacgaggcc ggcctggtct 12600
acgacgcgct gcttcagcgc gtggctcgtt acaacagcgg caacgtgcag accaacctgg 12660
accggctggt gggggatgtg cgcgaggccg tggcgcagcg tgagcgcgcg cagcagcagg 12720
gcaacctggg ctccatggtt gcactaaacg ccttcctgag tacacagccc gccaacgtgc 12780
cgcggggaca ggaggactac accaactttg tgagcgcact gcggctaatg gtgactgaga 12840
caccgcaaag tgaggtgtac cagtctgggc cagactattt tttccagacc agtagacaag 12900
gcctgcagac cgtaaacctg agccaggctt tcaaaaactt gcaggggctg tgggggggtgc 12960
gggctcccac aggcgaccgc gcgaccgtgt ctagcttgct gacgcccaac tcgcgcctgt 13020
tgctgctgct aatagcgccc ttcacggaca gtggcagcgt gtcccgggac acatacctag 13080
gtcacttgct gacactgtac cgcgaggcca taggtcaggc gcatgtggac gagcatactt 13140
tccaggagat tacaagtgtc agccgcgcgc tggggcagga ggacacgggc agcctggagg 13200
caaccctaaa ctacctgctg accaaccggc ggcagaagat cccctcgttg cacagtttaa 13260
acagcgagga ggagcgcatt ttgcgctacg tgcagcagag cgtgagcctt aacctgatgc 13320
gcgacggggt aacgcccagc gtggcgctgg acatgaccgc gcgcaacatg gaaccgggca 13380
tgtatgcctc aaaccggccg tttatcaacc gcctaatgga ctacttgcat cgcgcggccg 13440
ccgtgaaccc cgagtatttc accaatgcca tcttgaaccc gcactggcta ccgccccctg 13500
gtttctacac cgggggattc gaggtgcccg agggtaacga tggattcctc tgggacgaca 13560
tagacgacag cgtgttttcc ccgcaaccgc agaccctgct agagttgcaa cagcgcgagc 13620
aggcagaggc ggcgctgcga aaggaaagct tccgcaggcc aagcagcttg tccgatctag 13680
gcgctgcggc cccgcggtca gatgctagta gcccatttcc aagcttgata gggtctctta 13740
ccagcactcg caccacccgc ccgcgcctgc tgggcgagga ggagtaccta aacaactcgc 13800
tgctgcagcc gcagcgcgaa aaaaacctgc ctccggcatt tcccaacaac gggatagaga 13860
gcctagtgga caagatgagt agatggaaga cgtacgcgca ggagcacagg gacgtgccag 13920
gcccgcgccc gcccacccgt cgtcaaaggc acgaccgtca gcggggtctg gtgtgggagg 13980
acgatgactc ggcagacgac agcagcgtcc tggatttggg agggagtggc aacccgtttg 14040
cgcaccttcg ccccaggctg gggagaatgt tttaaaaaaa aaaaagcatg atgcaaaata 14100
aaaaactcac caaggccatg gcaccgagcg ttggttttct tgtattcccc ttagtatgcg 14160
gcgcgcggcg atgtatgagg aaggtcctcc tccctcctac gagagtgtgg tgagcgcggc 14220
gccagtggcg gcggcgctgg gttctccctt cgatgctccc ctggacccgc cgtttgtgcc 14280
tccgcggtac ctgcggccta ccgggggggag aaacagcatc cgttactctg agttggcacc 14340
cctattcgac accacccgtg tgtacctggt ggacaacaag tcaacggatg tggcatccct 14400
gaactaccag aacgaccaca gcaactttct gaccacggtc attcaaaaca atgactacag 14460
cccgggggag gcaagcacac agaccatcaa tcttgacgac cggtcgcact ggggcggcga 14520
cctgaaaacc atcctgcata ccaacatgcc aaatgtgaac gagttcatgt ttaccaataa 14580
gtttaaggcg cgggtgatgg tgtcgcgctt gcctactaag gacaatcagg tggagctgaa 14640
atacgagtgg gtggagttca cgctgcccga gggcaactac tccgagacca tgaccataga 14700
ccttatgaac aacgcgatcg tggagcacta cttgaaagtg ggcagacaga acggggttct 14760
ggaaagcgac atcggggtaa agtttgacac ccgcaacttc agactggggt ttgaccccgt 14820
cactggtctt gtcatgcctg gggtatatac aaacgaagcc ttccatccag acatcatttt 14880
gctgccagga tgcggggtgg acttcaccca cagccgcctg agcaacttgt tgggcatccg 14940
caagcggcaa cccttccagg agggctttag gatcacctac gatgatctgg agggtggtaa 15000
cattcccgca ctgttggatg tggacgccta ccaggcgagc ttgaaagatg acaccgaaca 15060
gggcgggggt ggcgcaggcg gcagcaacag cagtggcagc ggcgcggaag agaactccaa 15120
cgcggcagcc gcggcaatgc agccggtgga ggacatgaac gatcatgcca ttcgcggcga 15180
caccttgcc acacgggctg aggagaagcg cgctgaggcc gaagcagcgg ccgaagctgc 15240
cgccccgct gcgcaacccg aggtcgagaa gcctcagaag aaaccggtga tcaaacccct 15300
gacagaggac agcaagaaac gcagttacaa cctaataagc aatgacagca ccttcaccca 15360
gtaccgcagc tggtaccttg catacaacta cggcgaccct cagaccggaa tccgctcatg 15420
gaccctgctt tgcactcctg acgtaacctg cggctcggag caggtctact ggtcgttgcc 15480

agacatgatg caagaccccg tgaccttccg ctccacgcgc cagatcagca actttccggt 15540
ggtgggcgcc gagctgttgc ccgtgcactc caagagcttc tacaacgacc aggccgtcta 15600
ctcccaactc atccgccagt ttacctctct gacccacgtg ttcaatcgct ttcccgagaa 15660
ccagattttg gcgcgcccgc cagcccccac catcaccacc gtcagtgaaa acgttcctgc 15720
tctcacagat cacgggacgc taccgctgcg caacagcatc ggaggagtcc agcgagtgac 15780
cattactgac gccagacgcc gcacctgccc ctacgtttac aaggccctgg gcatagtctc 15840
gccgcgcgtc ctatcgagcc gcacttttg agcaagcatg tccatcctta tatcgcccag 15900
caataacaca ggctggggcc tgcgcttccc aagcaagatg tttggcgggg ccaagaagcg 15960
ctccgaccaa cacccagtgc gcgtgcgcgg gcactaccgc gcgccctggg gcgcgcacaa 16020
acgcggccgc actgggcgca ccaccgtcga tgacgccatc gacgcggtgg tggaggaggc 16080
gcgcaactac acgcccacgc cgccaccagt gtccacagtg gacgcggcca ttcagaccgt 16140
ggtgcgcgga gcccggcgct atgctaaaat gaagagacgg cggaggcgcg tagcacgtcg 16200
ccaccgccgc cgacccggca ctgccgccca acgcgcggcg gcggccctgc ttaaccgcgc 16260
acgtcgcacc ggccgacggg cggccatgcg ggccgctcga aggctggccg cgggtattgt 16320
cactgtgccc cccaggtcca ggcgacgagc ggccgccgca gcagccgcgg ccattagtgc 16380
tatgactcag ggtcgcaggg gcaacgtgta ttgggtgcgc gactcggtta gcggcctgcg 16440
cgtgcccgtg cgcacccgcc ccccgcgcaa ctagattgca agaaaaaact acttagactc 16500
gtactgttgt atgtatccag cggcggcggc gcgcaacgaa gctatgtcca agcgcaaaat 16560
caaagaagag atgctccagg tcatcgcgcc ggagatctat ggccccccga agaaggaaga 16620
gcaggattac aagccccgaa agctaaagcg ggtcaaaaag aaaaagaaag atgatgatga 16680
tgaacttgac gacgaggtgg aactgctgca cgctaccgcg cccaggcgac gggtacagtg 16740
gaaaggtcga cgcgtaaaac gtgttttgcg acccggcacc accgtagtct ttacgcccgg 16800
tgagcgctcc acccgcacct acaagcgcgt gtatgatgag gtgtacggcg acgaggacct 16860
gcttgagcag gccaacgagc gcctcgggga gtttgcctac ggaaagcggc ataaggacat 16920
gctggcgttg ccgctggacg agggcaaccc aacacctagc ctaaagcccg taacactgca 16980
gcaggtgctg cccgcgcttg caccgtccga agaaaagcgc ggcctaaagc gcgagtctgg 17040
tgacttggca cccaccgtgc agctgatggt acccaagcgc cagcgactgg aagatgtctt 17100
ggaaaaaatg accgtggaac ctgggctgga gcccgaggtc cgcgtgcggc caatcaagca 17160
ggtggcgccg ggactgggcg tgcagaccgt ggacgttcag atacccacta ccagtagcac 17220
cagtattgcc accgccacag agggcatgga gacacaaacg tccccggttg cctcagcggt 17280
ggcggatgcc gcggtgcagg cggtcgctgc ggccgcgtcc aagacctcta cggaggtgca 17340
aacggacccg tggatgtttc gcgtttcagc cccccggcgc ccgcgcggtt cgaggaagta 17400
cggcgccgcc agcgcgctac tgcccgaata tgccctacat ccttccattg cgcctacccc 17460
cggctatcgt ggctacacct accgccccag aagacgagca actacccgac gccgaaccac 17520
cactggaacc cgccgccgcc gtcgccgtcg ccagcccgtg ctggccccga tttccgtgcg 17580
cagggtggct cgcgaaggag gcaggaccct ggtgctgcca acagcgcgct accaccccag 17640
catcgtttaa aagccggtct ttgtggttct tgcagatatg gccctcacct gccgcctccg 17700
tttcccggtg ccgggattcc gaggaagaat gcaccgtagg aggggcatgg ccggccacgg 17760
cctgacgggc ggcatgcgtc gtgcgcacca ccggcggcgg cgcgcgtcgc accgtcgcat 17820
gcgcggcggt atcctgcccc tccttattcc actgatcgcc gcggcgattg gcgccgtgcc 17880
cggaattgca tccgtggcct tgcaggcgca gagacactga ttaaaaacaa gttgcatgtg 17940
gaaaaatcaa aataaaaagt ctggactctc acgctcgctt ggtcctgtaa ctattttgta 18000
gaatggaaga catcaacttt gcgtctctgg ccccgcgaca cggctcgcgc ccgttcatgg 18060
gaaactggca agatatcggc accagcaata tgagcggtgg cgccttcagc tggggctcgc 18120
tgtggagcgg cattaaaaat ttcggttcca ccgttaagaa ctatggcagc aaggcctgga 18180
acagcagcac aggccagatg ctgagggata agttgaaaga gcaaaatttc caacaaaagg 18240
tggtagatgg cctggcctct ggcattagcg gggtggtgga cctggccaac caggcagtgc 18300
aaaataagat taacagtaag cttgatcccc gccctcccgt agaggagcct ccaccggccg 18360
tggagacagt gtctccagag gggcgtggcg aaaagcgtcc gcgccccgac agggaagaaa 18420
ctctggtgac gcaaatagac gagcctccct cgtacgagga ggcactaaag caaggcctgc 18480
ccaccacccg tcccatcgcg cccatggcta ccggagtgct gggccagcac acacccgtaa 18540
cgctggacct gcctcccccc gccgacaccc agcagaaacc tgtgctgcca ggcccgaccg 18600
ccgttgttgt aacccgtcct agccgcgcgt ccctgcgccg cgccgccagc ggtccgcgat 18660
cgttgcggcc cgtagccagt ggcaactggc aaagcacact gaacagcatc gtgggtctgg 18720
gggtgcaatc cctgaagcgc cgacgatgct tctgaatagc taacgtgtcg tatgtgtgtc 18780
atgtatgcgt ccatgtcgcc gccagaggag ctgctgagcc gccgcgcgcc cgctttccaa 18840
gatggctacc ccttcgatga tgccgcagtg gtcttacatg cacatctcgg gccaggacgc 18900
ctcggagtac ctgagccccg ggctggtgca gtttgcccgc gccaccgaga cgtacttcag 18960

cctgaataac aagtttagaa accccacggt ggcgcctacg cacgacgtga ccacagaccg 19020
gtcccagcgt ttgacgctgc ggttcatccc tgtggaccgt gaggatactg cgtactcgta 19080
caaggcgcgg ttcaccctag ctgtgggtga taaccgtgtg ctggacatgg cttccacgta 19140
ctttgacatc cgcggcgtgc tggacagggg ccctactttt aagccctact ctggcactgc 19200
ctacaacgcc ctggctccca agggtgcccc aaatccttgc gaatgggatg aagctgctac 19260
tgctcttgaa ataaacctag aagaagagga cgatgacaac gaagacgaag tagacgagca 19320
agctgagcag caaaaaactc acgtatttgg gcaggcgcct tattctggta taaatattac 19380
aaaggagggt attcaaatag gtgtcgaagg tcaaacacct aaatatgccg ataaaacatt 19440
tcaacctgaa cctcaaatag gagaatctca gtggtacgaa actgaaatta atcatgcagc 19500
tgggagagtc cttaaaaaga ctaccccaat gaaaccatgt tacggttcat atgcaaaacc 19560
cacaaatgaa aatggagggc aaggcattct tgtaaagcaa caaaatggaa agctagaaag 19620
tcaagtggaa atgcaatttt tctcaactac tgaggcgacc gcaggcaatg gtgataactt 19680
gactcctaaa gtggtattgt acagtgaaga tgtagatata gaaaccccag acactcatat 19740
ttcttacatg cccactatta aggaaggtaa ctcacgagaa ctaatgggcc aacaatctat 19800
gcccaacagg cctaattaca ttgcttttag ggacaatttt attggtctaa tgtattacaa 19860
cagcacgggt aatatgggtg ttctggcggg ccaagcatcg cagttgaatg ctgttgtaga 19920
tttgcaagac agaaacacag agctttcata ccagcttttg cttgattcca ttggtgatag 19980
aaccaggtac ttttctatgt ggaatcaggc tgttgacagc tatgatccag atgttagaat 20040
tattgaaaat catggaactg aagatgaact tccaaattac tgctttccac tgggaggtgt 20100
gattaataca gagactctta ccaaggtaaa acctaaaaca ggtcaggaaa atggatggga 20160
aaaagatgct acagaatttt cagataaaaa tgaaataaga gttggaaata attttgccat 20220
ggaaatcaat ctaaatgcca acctgtggag aaatttcctg tactccaaca tagcgctgta 20280
tttgcccgac aagctaaagt acagtccttc caacgtaaaa atttctgata acccaaacac 20340
ctacgactac atgaacaagc gagtggtggc tcccgggtta gtggactgct acattaacct 20400
tggagcacgc tggtcccttg actatatgga caacgtcaac ccatttaacc accaccgcaa 20460
tgctggcctg cgctaccgct caatgttgct gggcaatggt cgctatgtgc ccttccacat 20520
ccaggtgcct cagaagttct ttgccattaa aaacctcctt ctcctgccgg gctcatacac 20580
ctacgagtgg aacttcagga aggatgttaa catggttctg cagagctccc taggaaatga 20640
cctaagggtt gacggagcca gcattaagtt tgatagcatt tgcctttacg ccaccttctt 20700
ccccatggcc cacaacaccg cctccacgct tgaggccatg cttagaaacg acaccaacga 20760
ccagtccttt aacgactatc tctccgccgc caacatgctc taccctatac ccgccaacgc 20820
taccaacgtg cccatatcca tcccctcccg caactgggcg gctttccgcg gctgggcctt 20880
cacgcgcctt aagactaagg aaaccccatc actgggctcg ggctacgacc cttattacac 20940
ctactctggc tctataccct acctagatgg aacctttac ctcaaccaca cctttaagaa 21000
ggtggccatt acctttgact cttctgtcag ctggcctggc aatgaccgcc tgcttacccc 21060
caacgagttt gaaattaagc gctcagttga cggggagggt tacaacgttg cccagtgtaa 21120
catgaccaaa gactggttcc tggtacaaat gctagctaac tacaacattg gctaccaggg 21180
cttctatatc ccagagagct acaaggaccg catgtactcc ttctttagaa acttccagcc 21240
catgagccgt caggtggtgg atgatactaa atacaaggac taccaacagg tgggcatcct 21300
acaccaacac aacaactctg gatttgttgg ctaccttgcc cccaccatgc gcgaaggaca 21360
ggcctaccct gctaacttcc cctatccgct tataggcaag accgcagttg acagcattac 21420
ccagaaaaag tttctttgcg atcgcaccct ttggcgcatc ccattctcca gtaactttat 21480
gtccatgggc gcactcacag acctgggcca aaaccttctc tacgccaact ccgcccacgc 21540
gctagacatg acttttgagg tggatcccat ggacgagccc acccttcttt atgttttgtt 21600
tgaagtcttt gacgtggtcc gtgtgcaccg gccgcaccgc ggcgtcatcg aaaccgtgta 21660
cctgcgcacg cccttctcgg ccggcaacgc cacaacataa agaagcaagc aacatcaaca 21720
acagctgccg ccatgggctc cagtgagcag gaactgaaag ccattgtcaa agatcttggt 21780
tgtgggccat atttttggg cacctatgac aagcgctttc caggctttgt ttctccacac 21840
aagctcgcct gcgccatagt caatacggcc ggtcgcgaga ctgggggcgt acactggatg 21900
gcctttgcct ggaacccgca ctcaaaaaca tgctacctct ttgagccctt tggcttttct 21960
gaccagcgac tcaagcaggt ttaccagttt gagtacgagt cactcctgcg ccgtagcgcc 22020
attgcttctt cccccgaccg ctgtataacg ctggaaaagt ccacccaaag cgtacagggg 22080
cccaactcgg ccgcctgtgg actattctgc tgcatgtttc tccacgcctt tgccaactgg 22140
ccccaaactc ccatggatca caaccccacc atgaacctta ttaccggggt acccaactcc 22200
atgctcaaca gtccccaggt acagcccacc ctgcgtcgca accaggaaca gctctacagc 22260
ttcctggagc gccactcgcc ctacttccgc agccacagtg cgcagattag gagcgccact 22320
tctttttgtc acttgaaaaa catgtaaaaa taatgtacta gagacacttt caataaaggc 22380
aaatgctttt atttgtacac tctcgggtga ttatttaccc ccacccttgc cgtctgcgcc 22440

gtttaaaaat caaaggggtt ctgccgcgca tcgctatgcg ccactggcag ggacacgttg 22500
cgatactggt gtttagtgct ccacttaaac tcaggcacaa ccatccgcgg cagctcggtg 22560
aagttttcac tccacaggct gcgcaccatc accaacgcgt ttagcaggtc gggcgccgat 22620
atcttgaagt cgcagttggg gcctccgccc tgcgcgcgcg agttgcgata cacagggttg 22680
cagcactgga acactatcag cgccgggtgg tgcacgctgg ccagcacgct cttgtcggag 22740
atcagatccg cgtccaggtc ctccgcgttg ctcagggcga acggagtcaa ctttggtagc 22800
tgccttccca aaaagggcgc gtgcccaggc tttgagttgc actcgcaccg tagtggcatc 22860
aaaaggtgac cgtgcccggt ctgggcgtta ggatacagcg cctgcataaa agccttgatc 22920
tgcttaaaag ccacctgagc ctttgcgcct tcagagaaga acatgccgca agacttgccg 22980
gaaaactgat tggccggaca ggccgcgtcg tgcacgcagc accttgcgtc ggtgttggag 23040
atctgcacca catttcggcc ccaccggttc ttcacgatct tggccttgct agactgctcc 23100
ttcagcgcgc gctgcccgtt ttcgctcgtc acatccattt caatcacgtg ctccttattt 23160
atcataatgc ttccgtgtag acacttaagc tcgccttcga tctcagcgca gcggtgcagc 23220
cacaacgcgc agcccgtggg ctcgtgatgc ttgtaggtca cctctgcaaa cgactgcagg 23280
tacgcctgca ggaatcgccc catcatcgtc acaaaggtct tgttgctggt gaaggtcagc 23340
tgcaacccgc ggtgctcctc gttcagccag gtcttgcata cggccgccag agcttccact 23400
tggtcaggca gtagtttgaa gttcgccttt agatcgttat ccacgtggta cttgtccatc 23460
agcgcgcgcg cagcctccat gcccttctcc cacgcagaca cgatcggcac actcagcggg 23520
ttcatcaccg taatttcact ttccgcttcg ctgggctctt cctcttcctc ttgcgtccgc 23580
ataccacgcg ccactgggtc gtcttcattc agccgccgca ctgtgcgctt acctcctttg 23640
ccatgcttga ttagcaccgg tgggttgctg aaacccacca tttgtagcgc cacatcttct 23700
ctttcttcct cgctgtccac gattacctct ggtgatggcg ggcgctcggg cttgggagaa 23760
gggcgcttct ttttcttctt gggcgcaatg gccaaatccg ccgccgaggt cgatggccgc 23820
gggctgggtg tgcgcggcac cagcgcgtct tgtgatgagt cttcctcgtc ctcggactcg 23880
atacgccgcc tcatccgctt ttttgggggc gcccggggag gcggcggcga cggggacggg 23940
gacgacacgt cctccatggt tgggggacgt cgcgccgcac cgcgtccgcg ctcgggggtg 24000
gtttcgcgct gctcctcttc ccgactggcc atttccttct cctataggca gaaaaagatc 24060
atggagtcag tcgagaagaa ggacagccta accgcccccc ctgagttcgc caccaccgcc 24120
tccaccgatg ccgccaacgc gcctaccacc ttccccgtcg aggcaccccc gcttgaggag 24180
gaggaagtga ttatcgagca ggacccaggt tttgtaagcg aagacgacga ggaccgctca 24240
gtaccaacag aggataaaaa gcaagaccag gacaacgcag aggcaaacga ggaacaagtc 24300
gggcgggggg acgaaaggca tggcgactac ctagatgtgg gagacgacgt gctgttgaag 24360
catctgcagc gccagtgcgc cattatctgc gacgcgttgc aagagcgcag cgatgtgccc 24420
ctcgccatag cggatgtcag ccttgcctac gaacgccacc tattctcacc gcgcgtaccc 24480
cccaaacgcc aagaaaacgg cacatgcgag cccaacccgc gcctcaactt ctaccccgta 24540
tttgccgtgc cagaggtgct tgccacctat cacatctttt tccaaaactg caagataccc 24600
ctatcctgcc gtgccaaccg cagccgagcg gacaagcagc tggccttgcg gcagggcgct 24660
gtcatacctg atatcgcctc gctcaacgaa gtgccaaaaa tctttgaggg tcttggacgc 24720
gacgagaagc gcgcggcaaa cgctctgcaa caggaaaaca gcgaaaatga aagtcactct 24780
ggagtgttgg tggaactcga gggtgacaac gcgcgcctag ccgtactaaa acgcagcatc 24840
gaggtcaccc actttgccta cccggcactt aacctacccc ccaaggtcat gagcacagtc 24900
atgagtgagc tgatcgtgcg ccgtgcgcag cccctggaga gggatgcaaa tttgcaagaa 24960
caaacagagg agggcctacc cgcagttggc gacgagcagc tagcgcgctg gcttcaaacg 25020
cgcgagcctg ccgacttgga ggagcgacgc aaactaatga tggccgcagt gctcgttacc 25080
gtggagcttg agtgcatgca gcggttcttt gctgacccgg agatgcagcg caagctagag 25140
gaaacattgc actacacctt tcgacagggc tacgtacgcc aggcctgcaa gatctccaac 25200
gtggagctct gcaacctggt ctcctacctt ggaattttgc acgaaaaccg ccttgggcaa 25260
aacgtgcttc attccacgct caagggcgag gcgcgccgcg actacgtccg cgactgcgtt 25320
tacttatttc tatgctacac ctggcagacg gccatgggcg tttggcagca gtgcttggag 25380
gagtgcaacc tcaaggagct gcagaaactg ctaaagcaaa acttgaagga cctatggacg 25440
gccttcaacg agcgctccgt ggccgcgcac ctggcggaca tcattttccc cgaacgcctg 25500
cttaaaaccc tgcaacaggg tctgccagac ttcaccagtc aaagcatgtt gcagaacttt 25560
aggaacttta tcctagagcg ctcaggaatc ttgcccgcca cctgctgtgc acttcctagc 25620
gactttgtgc ccattaagta ccgcgaatgc cctccgccgc tttggggcca ctgctacctt 25680
ctgcagctag ccaactacct tgcctaccac tctgacataa tggaagacgt gagcggtgac 25740
ggtctactgg agtgtcactg tcgctgcaac ctatgcaccc cgcaccgctc cctggtttgc 25800
aattcgcagc tgcttaacga aagtcaaatt atcggtacct ttgagctgca gggtccctcg 25860
cctgacgaaa agtccgcggc tccggggttg aaactcactc cggggctgtg gacgtcggct 25920

taccttcgca aatttgtacc tgaggactac cacgcccacg agattaggtt ctacgaagac 25980
caatcccgcc cgccaaatgc ggagcttacc gcctgcgtca ttacccaggg ccacattctt 26040
ggccaattgc aagccatcaa caaagcccgc caagagtttc tgctacgaaa gggacggggg 26100
gtttacttgg acccccagtc cggcgaggag ctcaacccaa tccccccgcc gccgcagccc 26160
tatcagcagc agccgcgggc ccttgcttcc caggatggca cccaaaaaga agctgcagct 26220
gccgccgcca cccacggacg aggaggaata ctgggacagt caggcagagg aggttttgga 26280
cgaggaggag gaggacatga tggaagactg ggagagccta gacgaggaag cttccgaggt 26340
cgaagaggtg tcagacgaaa caccgtcacc ctcggtcgca ttcccctcgc cggcgcccca 26400
gaaatcggca accggttcca gcatggctac aacctccgct cctcaggcgc cgccggcact 26460
gcccgttcgc cgacccaacc gtagatggga caccactgga accagggccg gtaagtccaa 26520
gcagccgccg ccgttagccc aagagcaaca acagcgccaa ggctaccgct catggcgcgg 26580
gcacaagaac gccatagttg cttgcttgca agactgtggg ggcaacatct ccttcgcccg 26640
ccgctttctt ctctaccatc acggcgtggc cttcccccgt aacatcctgc attactaccg 26700
tcatctctac agcccatact gcaccggcgg cagcggcagc ggcagcaaca gcagcggcca 26760
cacagaagca aaggcgaccg gatagcaaga ctctgacaaa gcccaagaaa tccacagcgg 26820
cggcagcagc aggaggagga gcgctgcgtc tggcgcccaa cgaacccgta tcgacccgcg 26880
agcttagaaa caggattttt cccactctgt atgctatatt tcaacagagc aggggccaag 26940
aacaagagct gaaaataaaa aacaggtctc tgcgatccct cacccgcagc tgcctgtatc 27000
acaaaagcga agatcagctt cggcgcacgc tggaagacgc ggaggctctc ttcagtaaat 27060
actgcgcgct gactcttaag gactagtttc gcgccctttc tcaaatttaa gcgcgaaaac 27120
tacgtcatct ccagcggcca cacccggcgc cagcacctgt cgtcagcgcc attatgagca 27180
aggaaattcc cacgccctac atgtggagtt accagccaca aatgggactt gcggctggag 27240
ctgcccaaga ctactcaacc cgaataaact acatgagcgc gggaccccac atgatatccc 27300
gggtcaacgg aatccgcgcc caccgaaacc gaattctctt ggaacaggcg gctattacca 27360
ccacacctcg taataacctt aatccccgta gttggcccgc tgccctggtg taccaggaaa 27420
gtcccgctcc caccactgtg gtacttccca gagacgccca ggccgaagtt cagatgacta 27480
actcaggggc gcagcttgcg ggcggctttc gtcacagggt gcggtcgccc gggcagggta 27540
taactcacct gacaatcaga gggcgaggta ttcagctcaa cgacgagtcg gtgagctcct 27600
cgcttggtct ccgtccggac gggacatttc agatcggcgg cgccggccgt ccttcattca 27660
cgcctcgtca ggcaatccta actctgcaga cctcgtcctc tgagccgcgc tctggaggca 27720
ttggaactct gcaatttatt gaggagtttg tgccatcggt ctactttaac cccttctcgg 27780
gacctcccgg ccactatccg gatcaattta ttcctaactt tgacgcggta aaggactcgg 27840
cggacggcta cgactgaatg ttaagtggag aggcagagca actgcgcctg aaacacctgg 27900
tccactgtcg ccgccacaag tgctttgccc gcgactccgg tgagttttgc tactttgaat 27960
tgcccgagga tcatatcgag ggcccggcgc acggcgtccg gcttaccgcc cagggagagc 28020
ttgcccgtag cctgattcgg gagtttaccc agcgcccccc gctagttgag cgggacaggg 28080
gaccctgtgt tctcactgtg atttgcaact gtcctaacct tggattacat caagatcttt 28140
gttgccatct ctgtgctgag tataataaat acagaaatta aaatatactg gggctcctat 28200
cgccatcctg taaacgccac cgtcttcacc cgcccaagca aaccaaggcg aaccttacct 28260
ggtactttta acatctctcc ctctgtgatt tacaacagtt tcaacccaga cggagtgagt 28320
ctacgagaga acctctccga gctcagctac tccatcagaa aaaacaccac cctccttacc 28380
tgccgggaac gtacgagtgc gtcaccggcc gctgcaccac acctaccgcc tgaccgtaaa 28440
ccagactttt tccggacaga cctcaataac tctgtttacc agaacaggag gtgagcttag 28500
aaaaccctta gggtattagg ccaaaggcgc agctactgtg gggtttatga acaattcaag 28560
caactctacg ggctattcta attcaggttt ctctagaatc ggggttgggg ttattctctg 28620
tcttgtgatt ctctttattc ttatactaac gcttctctgc ctaaggctcg ccgcctgctg 28680
tgtgcacatt tgcatttatt gtcagctttt taaacgctgg ggtcgccacc caagatgatt 28740
aggtacataa tcctaggttt actcaccctt gcgtcagccc acggtaccac ccaaaaggtg 28800
gattttaagg agccagcctg taatgttaca ttcgcagctg aagctaatga gtgcaccact 28860
cttataaaat gcaccacaga acatgaaaag ctgcttattc gccacaaaaa caaaattggc 28920
aagtatgctg tttatgctat ttggcagcca ggtgacacta cagagtataa tgttacagtt 28980
ttccagggta aaagtcataa aacttttatg tatacttttc cattttatga aatgtgcgac 29040
attaccatgt acatgagcaa acagtataag ttgtggcccc cacaaaattg tgtggaaaac 29100
actggcactt tctgctgcac tgctatgcta attacagtgc tcgctttggt ctgtacccta 29160
ctctatatta aatacaaaag cagacgcagc tttattgagg aaaagaaaat gccttaattt 29220
actaagttac aaagctaatg tcaccactaa ctgctttact cgctgcttgc aaaacaaatt 29280
caaaaagtta gcattataat tagaatagga tttaaacccc ccggtcattt cctgctcaat 29340
accattcccc tgaacaattg actctatgtg ggatatgctc cagcgctaca accttgaagt 29400

caggcttcct ggatgtcagc atctgacttt ggccagcacc tgtcccgcgg atttgttcca 29460
gtccaactac agcgacccac cctaacagag atgaccaaca caaccaacgc ggccgccgct 29520
accggactta catctaccac aaatacaccc caagtttctg cctttgtcaa taactgggat 29580
aacttgggca tgtggtggtt ctccatagcg cttatgtttg tatgccttat tattatgtgg 29640
ctcatctgct gcctaaagcg caaacgcgcc cgaccaccca tctatagtcc catcattgtg 29700
ctacacccaa acaatgatgg aatccataga ttggacggac tgaaacacat gttcttttct 29760
cttacagtat gattaaatga gacatgattc ctcgagtttt tatattactg acccttgttg 29820
cgcttttttg tgcgtgctcc acattggctg cggtttctca catcgaagta gactgcattc 29880
cagccttcac agtctatttg ctttacggat ttgtcaccct cacgctcatc tgcagcctca 29940
tcactgtggt catcgccttt atccagtgca ttgactgggt ctgtgtgcgc tttgcatatc 30000
tcagacacca tccccagtac agggacagga ctatagctga gcttcttaga attctttaat 30060
tatgaaattt actgtgactt ttctgctgat tatttgcacc ctatctgcgt tttgttcccc 30120
gacctccaag cctcaaagac atatatcatg cagattcact cgtatatgga atattccaag 30180
ttgctacaat gaaaaaagcg atctttccga agcctggtta tatgcaatca tctctgttat 30240
ggtgttctgc agtaccatct tagccctagc tatatatccc taccttgaca ttggctggaa 30300
acgaatagat gccatgaacc acccaacttt ccccgcgccc gctatgcttc cactgcaaca 30360
agttgttgcc ggcggctttg tcccagccaa tcagcctcgc cccacttctc ccacccccac 30420
tgaaatcagc tactttaatc taacaggagg agatgactga caccctagat ctagaaatgg 30480
acggaattat tacagagcag cgcctgctag aaagacgcag ggcagcggcc gagcaacagc 30540
gcatgaatca agagctccaa gacatggtta acttgcacca gtgcaaaagg ggtatctttt 30600
gtctggtaaa gcaggccaaa gtcacctacg acagtaatac caccggacac cgccttagct 30660
acaagttgcc aaccaagcgt cagaaattgg tggtcatggt gggagaaaag cccattacca 30720
taactcagca ctcggtagaa accgaaggct gcattcactc accttgtcaa ggacctgagg 30780
atctctgcac ccttattaag accctgtgcg gtctcaaaga tcttattccc tttaactaat 30840
aaaaaaaaat aataaagcat cacttactta aaatcagtta gcaaatttct gtccagttta 30900
ttcagcagca cctccttgcc ctcctcccag ctctggtatt gcagcttcct cctggctgca 30960
aactttctcc acaatctaaa tggaatgtca gtttcctcct gttcctgtcc atccgcaccc 31020
actatcttca tgttgttgca gatgaagcgc gcaagaccgt ctgaagatac cttcaacccc 31080
gtgtatccat atgacacgga aaccggtcct ccaactgtgc cttttcttac tcctcccttt 31140
gtatccccca atgggtttca agagagtccc cctggggtac tctctttgcg cctatccgaa 31200
cctctagtta cctccaatgg catgcttgcg ctcaaaatgg gcaacggcct ctctctggac 31260
gaggccggca accttacctc ccaaaatgta accactgtga gcccacctct caaaaaaacc 31320
aagtcaaaca taaacctgga aatatctgca cccctcacag ttacctcaga agccctaact 31380
gtggctgccg ccgcacctct aatggtcgcg ggcaacacac tcaccatgca atcacaggcc 31440
ccgctaaccg tgcacgactc caaacttagc attgccaccc aaggacccct cacagtgtca 31500
gaaggaaagc tagccctgca aacatcaggc cccctcacca ccaccgatag cagtaccctt 31560
actatcactg cctcaccccc tctaactact gccactggta gcttgggcat tgacttgaaa 31620
gagcccattt atacacaaaa tggaaaacta ggactaaagt acggggctcc tttgcatgta 31680
acagacgacc taaacacttt gaccgtagca actggtccag gtgtgactat taataatact 31740
tccttgcaaa ctaaagttac tggagccttg ggttttgatt cacaaggcaa tatgcaactt 31800
aatgtagcag gaggactaag gattgattct caaaacagac gccttatact tgatgttagt 31860
tatccgtttg atgctcaaaa ccaactaaat ctaagactag gacagggccc tctttttata 31920
aactcagccc acaacttgga tattaactac aacaaaggcc tttacttgtt tacagcttca 31980
aacaattcca aaaagcttga ggttaaccta agcactgcca aggggttgat gtttgacgct 32040
acagccatag ccattaatgc aggagatggg cttgaatttg gttcacctaa tgcaccaaac 32100
acaaatcccc tcaaaacaaa aattggccat ggcctagaat ttgattcaaa caaggctatg 32160
gttcctaaac taggaactgg ccttagtttt gacagcacag gtgccattac agtaggaaac 32220
aaaaataatg ataagctaac tttgtggacc acaccagctc catctcctaa ctgtagacta 32280
aatgcagaga aagatgctaa actcactttg gtcttaacaa aatgtggcag tcaaatactt 32340
gctacagttt cagttttggc tgttaaaggc agtttggctc caatatctgg aacagttcaa 32400
agtgctcatc ttattataag atttgacgaa aatggagtgc tactaaacaa ttccttcctg 32460
gacccagaat attggaactt tagaaatgga gatcttactg aaggcacagc ctatacaaac 32520
gctgttggat ttatgcctaa cctatcagct tatccaaaat ctcacggtaa aactgccaaa 32580
agtaacattg tcagtcaagt ttacttaaac ggagacaaaa ctaaacctgt aacactaacc 32640
attacactaa acggtacaca ggaaacagga gacacaactc caagtgcata ctctatgtca 32700
ttttcatggg actggtctgg ccacaactac attaatgaaa tatttgccac atcctcttac 32760
acttttcat acattgccca agaataaaga atcgtttgtg ttatgtttca acgtgtttat 32820
ttttcaattg cagaaaattt caagtcattt ttcattcagt agtatagccc caccaccaca 32880

tagcttatac agatcaccgt accttaatca aactcacaga accctagtat tcaacctgcc 32940
acctccctcc caacacacag agtacacagt cctttctccc cggctggcct taaaaagcat 33000
catatcatgg gtaacagaca tattcttagg tgttatattc cacacggttt cctgtcgagc 33060
caaacgctca tcagtgatat taataaactc cccgggcagc tcacttaagt tcatgtcgct 33120
gtccagctgc tgagccacag gctgctgtcc aacttgcggt tgcttaacgg gcggcgaagg 33180
agaagtccac gcctacatgg gggtagagtc ataatcgtgc atcaggatag ggcggtggtg 33240
ctgcagcagc gcgcgaataa actgctgccg ccgccgctcc gtcctgcagg aatacaacat 33300
ggcagtggtc tcctcagcga tgattcgcac cgcccgcagc ataaggcgcc ttgtcctccg 33360
ggcacagcag cgcaccctga tctcacttaa atcagcacag taactgcagc acagcaccac 33420
aatattgttc aaaatcccac agtgcaaggc gctgtatcca aagctcatgg cggggaccac 33480
agaacccacg tggccatcat accacaagcg caggtagatt aagtggcgac ccctcataaa 33540
cacgctggac ataaacatta cctcttttgg catgttgtaa ttcaccacct cccggtacca 33600
tataaacctc tgattaaaca tggcgccatc caccaccatc ctaaaccagc tggccaaaac 33660
ctgcccgccg gctatacact gcagggaacc gggactggaa caatgacagt ggagagccca 33720
ggactcgtaa ccatggatca tcatgctcgt catgatatca atgttggcac aacacaggca 33780
cacgtgcata cacttcctca ggattacaag ctcctcccgc gttagaacca tatcccaggg 33840
aacaacccat tcctgaatca gcgtaaatcc cacactgcag ggaagacctc gcacgtaact 33900
cacgttgtgc attgtcaaag tgttacattc gggcagcagc ggatgatcct ccagtatggt 33960
agcgcgggtt tctgtctcaa aaggaggtag acgatcccta ctgtacggag tgcgccgaga 34020
caaccgagat cgtgttggtc gtagtgtcat gccaaatgga acgccggacg tagtcatatt 34080
tcctgaagca aaaccaggtg cgggcgtgac aaacagatct gcgtctccgg tctcgccgct 34140
tagatcgctc tgtgtagtag ttgtagtata tccactctct caaagcatcc aggcgccccc 34200
tggcttcggg ttctatgtaa actccttcat gcgccgctgc cctgataaca tccaccaccg 34260
cagaataagc cacacccagc caacctacac attcgttctg cgagtcacac acgggaggag 34320
cgggaagagc tggaagaacc atgttttttt ttttattcca aaagattatc caaaacctca 34380
aaatgaagat ctattaagtg aacgcgctcc cctccggtgg cgtggtcaaa ctctacagcc 34440
aaagaacaga taatggcatt tgtaagatgt tgcacaatgg cttccaaaag gcaaacggcc 34500
ctcacgtcca agtggacgta aaggctaaac ccttcagggt gaatctcctc tataaacatt 34560
ccagcacctt caaccatgcc caaataattc tcatctcgcc accttctcaa tatatctcta 34620
agcaaatccc gaatattaag tccggccatt gtaaaaatct gctccagagc gccctccacc 34680
ttcagcctca agcagcgaat catgattgca aaaattcagg ttcctcacag acctgtataa 34740
gattcaaaag cggaacatta acaaaaatac cgcgatcccg taggtccctt cgcagggcca 34800
gctgaacata atcgtgcagg tctgcacgga ccagcgcggc cacttccccg ccaggaacct 34860
tgacaaaaga acccacactg attatgacac gcatactcgg agctatgcta accagcgtag 34920
ccccgatgta agctttgttg catgggcggc gatataaaat gcaaggtgct gctcaaaaaa 34980
tcaggcaaag cctcgcgcaa aaaagaaagc acatcgtagt catgctcatg cagataaagg 35040
caggtaagct ccggaaccac cacagaaaaa gacaccattt ttctctcaaa catgtctgcg 35100
ggtttctgca taaacacaaa ataaaataac aaaaaaacat ttaaacatta gaagcctgtc 35160
ttacaacagg aaaaacaacc cttataagca taagacggac tacggccatg ccggcgtgac 35220
cgtaaaaaaa ctggtcaccg tgattaaaaa gcaccaccga cagctcctcg gtcatgtccg 35280
gagtcataat gtaagactcg gtaaacacat caggttgatt catcggtcag tgctaaaaag 35340
cgaccgaaat agcccggggg aatacatacc cgcaggcgta gagacaacat tacagccccc 35400
ataggaggta taacaaaatt aataggagag aaaaacacat aaacacctga aaaaccctcc 35460
tgcctaggca aaatagcacc ctcccgctcc agaacaacat acagcgcttc acagcggcag 35520
cctaacagtc agccttacca gtaaaaaaga aaacctatta aaaaaacacc actcgacacg 35580
gcaccagctc aatcagtcac agtgtaaaaa agggccaagt gcagagcgag tatatatagg 35640
actaaaaaat gacgtaacgg ttaaagtcca caaaaaacac ccagaaaacc gcacgcgaac 35700
ctacgcccag aaacgaaagc caaaaaaccc acaacttcct caaatcgtca cttccgtttt 35760
cccacgttac gtaacttccc attttaagaa aactacaatt cccaacacat acaagttact 35820
ccgccctaaa acctacgtca cccgccccgt tcccacgccc cgcgccacgt cacaaactcc 35880
acccccctcat tatcatattg gcttcaatcc aaaataaggt atattattga tgatg 35935

<210> 2
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 2
gggtggaaag ccagcctcgt g 21

<210> 3
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 3
acccgcaggc gtagagacaa c 21

<210> 4
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 4
agatcaaagg gattaagatc aaagggccac cacctcatta t 41

<210> 5
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 5
tccctttgat ctccaaccct ttgatctagt cctatttata cccggtga 48

<210> 6
<211> 44
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 6
tccctttgat ctccactagt gtgaattgta gttttcttaa aatg 44

<210> 7
<211> 27
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 7
gaactagtag taaatttggg cgtaacc 27

<210> 8
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 8
acgctagcaa aacacctggg cgagt 25

<210> 9
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 9
cattttcagt cccggtgtcg 20

<210> 10
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 10
accgaagaaa tggccgccag 20

<210> 11
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 11
tctgtaatgt tggcggtgca ggaag 25

<210> 12
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 12
atggctagga ggtggaagat 20

<210> 13
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 13
gtgtcggagc ggctcggagg 20

<210> 14
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 14
caggtcctca tatagcaaag c 21

<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 15
tgtctgaacc tgagcctgag 20

<210> 16
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 16
catctctaca gcccatac 18

<210> 17
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 17
agttgctctg cctctccac 19

<210> 18
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 18
cgtgattaaa aagcaccacc 20

<210> 19
<211> 126
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mut E1A
promoter sequence

<400> 19
catcatcaat aatatacctt attttggatt gaagccaata tgataatgag gtggtggccc 60
tttgatctta atccctttga tctggatccc tttgatctcc aaccctttga tctagtccta 120
tttata 126

<210> 20
<211> 9
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Promoter
replacement sequence

<400> 20
atcaaaggg 9

<210> 21
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Promoter
replacement sequence

<400> 21
atcaaaggga tccagatcaa agg 23

<210> 22
<211> 52
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Promoter
replacement sequence

<400> 22
atcaagggtt ggagatcaaa gggatccaga tcaaagggat taagatcaaa gg 52

<210> 23
<211> 53
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Promoter
replacement sequence

<400> 23
atcaaagggt tggagatcaa agggatccag atcaaaggga ttaagatcaa agg 53

<210> 24
<211> 654
<212> DNA
<213> Escherichia coli

<400> 24
atggatatca tttctgtcgc cttaaagcgt cattccacta aggcatttga tgccagcaaa 60
aaacttaccc cggaacaggc cgagcagatc aaaacgctac tgcaatacag cccatccagc 120
accaactccc agccgtggca ttttattgtt gccagcacgg aagaaggtaa agcgcgtgtt 180
gccaaatccg ctgccggtaa ttacgtgttc aacgagcgta aaatgcttga tgcctcgcac 240
gtcgtggtgt tctgtgcaaa aaccgcgatg gacgatgtct ggctgaagct ggttgttgac 300
caggaagatg ccgatggccg ctttgccacg ccggaagcga aagccgcgaa cgataaaggt 360
cgcaagttct tcgctgatat gcaccgtaaa gatctgcatg atgatgcaga gtggatggca 420
aaacaggttt atctcaacgt cggtaacttc ctgctcggcg tggcggctct gggtctggac 480
gcggtaccca tcgaaggttt tgacgccgcc atcctcgatg cagaatttgg tctgaaagag 540
aaaggctaca ccagtctggt ggttgttccg gtaggtcatc acagcgttga agattttaac 600
gctacgctgc cgaaatctcg tctgccgcaa aacatcacct taaccgaagt gtaa 654

<210> 25
<211> 477
<212> DNA
<213> Saccharomyces cerevisiae

<400> 25
atggtgacag ggggaatggc aagcaagtgg gatcagaagg gtatggacat tgcctatgag 60
gaggcggcct taggttacaa agagggtggt gttcctattg gcggatgtct tatcaataac 120
aaagacggaa gtgttctcgg tcgtggtcac aacatgagat ttcaaaaggg atccgccaca 180
ctacatggtg agatctccac tttggaaaac tgtgggagat tagagggcaa agtgtacaaa 240
gataccactt tgtatacgac gctgtctcca tgcgacatgt gtacaggtgc catcatcatg 300
tatggtattc cacgctgtgt tgtcggtgag aacgttaatt tcaaaagtaa gggcgagaaa 360
tatttacaaa ctagaggtca cgaggttgtt gttgttgacg atgagaggtg taaaaagatc 420
atgaaacaat ttatcgatga aagacctcag gattggtttg aagatattgg tgagtag 477

<210> 26
<211> 576
<212> DNA
<213> Encephalomyocarditis virus

<400> 26
cgcccctctc cctccccccc ccctaacgtt actggccgaa gccgcttgga ataaggccgg 60
tgtgcgtttg tctatatgtt attttccacc atattgccgt cttttggcaa tgtgagggcc 120
cggaaacctg gccctgtctt cttgacgagc attcctaggg gtctttcccc tctcgccaaa 180
ggaatgcaag gtctgttgaa tgtcgtgaag gaagcagttc ctctggaagc ttcttgaaga 240
caaacaacgt ctgtagcgac cctttgcagg cagcggaacc ccccacctgg cgacaggtgc 300
ctctgcggcc aaaagccacg tgtataagat acacctgcaa aggcggcaca accccagtgc 360
cacgttgtga gttggatagt tgtggaaaga gtcaaatggc tctcctcaag cgtattcaac 420
aaggggctga aggatgccca gaaggtaccc cattgtatgg gatctgatct ggggcctcgg 480
tgcacatgct ttacatgtgt ttagtcgagg ttaaaaaacg tctaggcccc ccgaaccacg 540
gggacgtggt tttcctttga aaaacacgat gataat 576

<210> 27
<211> 492
<212> DNA
<213> Adenovirus type 5

<400> 27
catcatcaat aatatacctt attttggatt gaagccaata tgataatgag ggggtggagt 60
ttgtgacgtg gcgcggggcg tgggaacggg gcgggtgacg tagtagtgtg gcggaagtgt 120
gatgttgcaa gtgtggcgga acacatgtaa gcgacggatg tggcaaaagt gacgtttttg 180
gtgtgcgccg gtgtacacag gaagtgacaa ttttcgcgcg gttttaggcg gatgttgtag 240
taaatttggg cgtaaccgag taagatttgg ccattttcgc gggaaaactg aataagagga 300
agtgaaatct gaataatttt gtgttactca tagcgcgtaa tatttgtcta gggccgcggg 360
gactttgacc gtttacgtgg agactcgccc aggtgttttt ctcaggtgtt ttccgcgttc 420
cgggtcaaag ttggcgtttt attattatag tcagctgacg tgtagtgtat ttatacccgg 480
tgagttcctc aa 492

<210> 28
<211> 340
<212> DNA
<213> Adenovirus type 5

<400> 28
gtcacagtgt aaaaaagggc caagtgcaga gcgagtatat ataggactaa aaaatgacgt 60
aacggttaaa gtccacaaaa aacacccaga aaaccgcacg cgaacctacg cccagaaacg 120
aaagccaaaa aacccacaac ttcctcaaat cgtcacttcc gttttcccac gttacgtcac 180
ttcccatttt aagaaaacta caattcccaa cacatacaag ttactccgcc ctaaaaccta 240
cgtcacccgc cccgttccca cgccccgcgc cacgtcacaa actccacccc ctcattatca 300
tattggcttc aatccaaaat aaggtatatt attgatgatg 340

<210> 29
<211> 481
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mut E4
promoter sequence

<400> 29
gtcacagtgt aaaaaagggc caagtgcaga gcgagtatat ataggactaa aaaatgacgt 60
aacggttaaa gtccacaaaa aacacccaga aaaccgcacg cgaacctacg cccagaaacg 120
aaagccaaaa aacccacaac ttcctcaaat cgtcacttcc gttttcccac gttacgtcac 180
ttcccatttt aagaaaacta caattcacac tagcaaaaca cctgggcgag tctccacgta 240
aacggtcaaa gtccccgcgg ccctagacaa atattacgcg ctatgagtaa cacaaaatta 300
ttcagatttc acttcctctt attcagtttt cccgcgaaaa tggccaaatc ttactcggtt 360
acgcccaaat ttactactag tggagatcaa agggatccag atcaaaggga ttaagatcaa 420
agggccacca cctcattatc atattggctt caatccaaaa taaggtatat tattgatgat 480
g 481

<210> 30
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 30
tgcattggta ccgtcatctc ta 22

<210> 31
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 31
gttgctctgc ctctccactt 20

<210> 32
<211> 41
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 32
cagatcaaag ggattaagat caaagggcca ttatgagcaa g 41

<210> 33
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 33
gatccctttg atctccaacc ctttgatcta gtccttaaga gtc 43

<210> 34
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 34
gggcgagtct ccacgtaaac g 21

<210> 35
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 35
gggcaccagc tcaatcagtc a 21

<210> 36
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 36
cggaattcaa gcttaattaa catcatcaat aatatacc 38

<210> 37
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 37
gcggctagcc accatggagc gaagaaaccc a 31

<210> 38
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 38
gccaccggta caacattcat t 21

<210> 39
<211> 40
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 39
agctgggctc tcttggtaca ccagtgcagc gggccaacta 40

<210> 40
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 40
cccaccactg tagtgctgcc aagagacgcc caggccgaag tt 42

<210> 41
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 41
ctgcgccccg ctattggtca tctgaacttc ggcctg 36

<210> 42
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 42
cttgcgggcg gctttagaca cagggtgcgg tc 32

<210> 43
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 43
cagatcaaag ggccattatg agcaag 26

<210> 44
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 44
gatccctttg atctagtcct taagagtc 28

<210> 45
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 45
atggcacaaa ctcctcaata a 21

<210> 46
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 46
ccaagactac tcaacccgaa ta 22

<210> 47
<211> 143
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Mut E1A
promoter sequence

<400> 47
catcatcaat aatatacctt attttggatt gaagccaata tgataatgag gtggtggccc 60
tttgatctta atccctttga tctggatccc tttgatctcc aaccctttga tctagtccta 120
tttatacccg gtgagttcct caa 143

<210> 48
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 48
agtttcttta ttcttgggca atgt 24

<210> 49
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 49
agtcgtttgt gttatgtttc aac 23

<210> 50
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 50
tcgctagcca ggcacaatct tcgcatttct ttttttccag atggtgacag ggggaatggc 60

<210> 51
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 51
tgactagtta ttcaccaata tcttcaaa 28

<210> 52
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 52
atgctagcga attccgcccc tctc 24

<210> 53
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 53
atactagtta tgcatattat catcgtgttt 30

<210> 54
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 54
ggaattcgct agtttctcta ctcttgggca atgta 35

<210> 55
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 55
ggtggtggag atgctaaact cactttggtc 30

<210> 56
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 56
gtgacagggg gaatggcaag 20

<210> 57
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 57
tgactagttt attcaccaat atcttcaaa 29

<210> 58
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 58
gccattaatg caggagatg 19

<210> 59
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 59
ggagaaagga ctgtgtactc 20

<210> 60
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 60
aggatccact ctcttccgca tcgctgtc 28

<210> 61
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 61

agggttttcc cagtcacgac gtt 23

<210> 62
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 62
agcggataac aatttcacac agga 24

<210> 63
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative peptide

<400> 63
Glu Asp Pro Asn Glu Glu
1 5

<210> 64
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative peptide

<400> 64
Ala Ala Ala Ala Ala Gly
1 5

<210> 65
<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative peptide

<400> 65
Leu Asp Leu Ser
1

<210> 66

<211> 4
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Illustrative peptide

<400> 66
Ala Ala Ala Ala
1